

CLAIMS

What is claimed is:

1. An apparatus, comprising:
a substrate; and
a multi-layer patch disposed above the substrate, wherein portions of an identification character printed with thermochromatic ink are distributed within a three-dimensional matrix of the multi-layer patch.
2. The apparatus of claim 1, wherein a topmost layer of the multi-layer patch, relative to the substrate, has a lower activation temperature than a bottommost layer.
3. The apparatus of claim 1, wherein the character portions of the identification character have unique activation temperatures.
4. The apparatus of claim 3, wherein the identification character is not revealed until all the character portions reach a unique activation temperature.
5. The apparatus of claim 1, wherein the thermochromatic ink comprises a leucodye to change from a first color to a transparent state.
6. The apparatus of claim 1, wherein the thermochromatic ink comprises a liquid crystal to change from a first color to a second color.
7. The apparatus of claim 1, wherein the substrate comprises a semi-conductor based package.

8. An apparatus, comprising:
 - a substrate;
 - a first layer disposed above the substrate having a first portion of an identification character, and
 - a second layer disposed above the first layer having a second portion printed with thermochromatic ink and a third portion printed with non-thermochromatic ink, wherein the identification character is distributed within a three-dimensional matrix of the first and second layers.
9. The apparatus of claim 8, wherein the first and third portions are printed with permanent ink.
10. The apparatus of claim 8, wherein the second layer is thermochromatic.
11. The apparatus of claim 8, wherein the second portion and the second layer, comprise a leucodye.
12. The apparatus of claim 11, wherein the second portion has a first activation temperature and the second thermochromatic layer has a second activation temperature.
13. The apparatus of claim 12, wherein a temporary identification character is formed by the second and third portions and the identification character is formed by the first and third portions.
14. The apparatus of claim 12, wherein the first and second activation temperatures are within a range about 30⁰ F to about 200⁰ F.
15. The apparatus of claim 8, wherein the substrate comprises a semi-conductor based package.

16. A method, comprising:
printing portions of an identification character with thermochromatic ink on a multi-layer patch; and
heating the multi-layer patch to activate the thermochromatic ink to reveal the identification character within a three-dimensional matrix of the multi-layer patch.
17. The method of claim 16, wherein printing further comprises distributing portions of the identification character among layers of the multi-layer patch.
18. The method of claim 16, further comprising coating at least one layer of the multi-layer patch with thermochromatic ink.
19. The method of claim 18, further comprising raising a temperature of the at least one layer to an activation temperature.
20. The method of claim 17, further comprising disposing the multi-layer patch above a substrate.
21. The method of claim 17, wherein printing further comprises screen printing thermochromatic ink on the multi-layer patch.
22. The method of claim 21, wherein printing further comprising printing portions of the identification character with non-thermochromatic ink.

23. A method, comprising:
superimposing a first portion of an identification character with printed with permanent ink and a second portion of the identification character printed with thermochromatic ink on a first thermochromatic layer of a multi-layer patch;
printing a third portion of the identification character with permanent ink on a second layer disposed below the first thermochromatic layer; and
heating the multi-layer patch to activate the second character portion and thermochromatic layer to reveal the identification character within a three-dimensional matrix of the multi-layer patch.
24. The method of claim 23, wherein heating further comprises raising a temperature of the multi-layer to a first activation temperature that corresponds to the second portion of the identification character, and a second activation temperature that corresponds to the first thermochromatic layer.
25. The method of claim 24, wherein heating further comprises changing the identification character formed by the first and second portion to a different identification character formed by the first and third portions.
26. The method of claim 23, further comprising a second thermochromatic layer disposed above the first chromatic layer.
27. A method, comprising:
printing portions of an identification character with thermochromatic ink on a patch; and
cooling the patch to activate the thermochromatic ink to reveal the identification character on the patch.
28. The method of claim 27, wherein cooling further comprises changing the identification character from a transparent state to a visible state.

29. The method of claim 27, wherein printing further comprises screen-printing the patch with a leucodye.

30. The method of claim 27, wherein cooling further comprises changing the identification character from a first color to a second color.